

## CLAIMS

What is claimed is:

- 1 1. A computer assembly comprising:  
2 an integrated circuit chip;  
3 a heat sink;  
4 an alignment cage attached to said heat sink and capable of receiving said integrated  
5 circuit chip;  
6 a circuit board; and  
7 a socket mounted to said circuit board and adapted to receive said integrated circuit chip,  
8 wherein said alignment cage comprises an alignment tab that aligns said alignment cage to said  
9 socket.
- 1 2. The computer assembly of claim 1, further comprising an alignment pin attached to said  
2 heat sink and a receptacle on said circuit board for receiving said alignment pin.
- 1 3. The computer assembly of claim 1, wherein said socket has a locking lever that is  
2 actuatable when said heat sink is installed.
- 1 4. The computer assembly of claim 1, wherein said heat sink prevents observation of an  
2 interface between said chip and said socket.
- 1 5. The computer assembly of claim 1, wherein said chip is attached to said alignment cage  
2 before being installed on said socket.

1 6. A method of installing an integrated circuit chip and heat sink onto a socket mounted to a  
2 circuit board, the method comprising steps:

- 3 (1) attaching the chip to an alignment cage mounted to the heat sink;  
4 (2) inserting alignment pins that are mounted to the heat sink into receptacles located  
5 on the circuit board;  
6 (3) inserting the chip into the socket; and  
7 (4) locking the chip onto the socket.

1 7. The method of claim 6, further comprising interfacing the alignment cage to the socket  
2 after step (2) but before step (3).

1 8. The method of claim 6, wherein the method is performed without any tools.

1 9. The method of claim 6, wherein observation of step (3) is obscured by the heat sink.

1 10. A heat sink assembly comprising:  
2 a heat sink member having a base;  
3 an alignment cage attached to the base of said heat sink member; and  
4 a plurality of alignment pins attached to the base of said heat sink member.

1 11. The assembly of claim 10, further comprising an integrated circuit chip affixed to said  
2 alignment cage.

1 12. The assembly of claim 10, wherein said alignment cage comprises a plurality of  
2 alignment tabs.

1 13. A integrated circuit chip socket having an open and closed position, the socket  
2 comprising:

3 an interface for coupling a integrated circuit chip to a circuit board; and  
4 a plurality of slots disposed around the perimeter of said interface and providing an  
5 interface surface for alignment of a heat sink.

1 14. The socket of claim 13, further comprising;  
2 an extended portion; and  
3 a locking arm mounted to said extending portion for actuating the socket between the  
4 open and closed positions.

1 15. A computer assembly comprising:  
2 an integrated circuit chip;  
3 a heat sink assembly attached to said chip;  
4 a circuit board;  
5 a socket adapted to receive said chip and attached to said circuit board;  
6 a means for aligning said heat sink to said circuit board; and  
7 a means for aligning said heat sink to said socket.

1 16. The assembly of claim 15, further comprising a means for aligning said chip to said  
2 socket.

1 17. The assembly of claim 15, wherein said means for aligning said heat sink to said circuit  
2 board comprises a plurality of pins interfacing with a corresponding plurality of holes.

1 18. The assembly of claim 15, wherein said means for aligning said heat sink to said socket  
2 comprises a plurality of tabs interfacing with a corresponding plurality of slots.

1 19. A method for removing an integrated circuit chip and heat sink from a circuit board  
2 comprising:

3 actuating a locking lever on a socket to an open position;

4 lifting the heat sink off of the circuit board; and

5 removing the chip from the heat sink.

1 20. The method of claim 19, wherein the chip is removed from the heat sink by releasing one  
2 or more clips.

1 21. A computer assembly comprising:

2 a component having multiple pins;

3 a heat sink;

4 an alignment cage attached to said heat sink and capable of receiving said component;

5 a circuit board; and

6 a socket mounted to said circuit board and adapted to receive the pins of said component,  
7 wherein said alignment cage comprises an alignment tab that aligns said alignment cage to said  
8 socket.

1 22. The computer assembly of claim 21, further comprising an alignment pin attached to said  
2 heat sink and a receptacle on said circuit board for receiving said alignment pin.

1 23. The computer assembly of claim 21, wherein said socket has a locking lever that is  
2 actuatable when said heat sink is installed.

1 24. The computer assembly of claim 21, wherein said heat sink prevents observation of an  
2 interface between said component and said socket.

1 25. The computer assembly of claim 21, wherein said component is attached to said  
2 alignment cage before being installed on said socket.

1 26. A method of installing a multi-pin electrical component and heat sink onto a socket  
2 mounted to a circuit board, the method comprising steps:

- 3 (1) attaching the component to an alignment cage mounted to the heat sink;
- 4 (2) inserting alignment members that are mounted to the heat sink into receptacles  
5 located on the circuit board;
- 6 (3) inserting the component into the socket; and
- 7 (4) locking the component onto the socket.

1 27. The method of claim 26, further comprising interfacing the alignment cage to the socket  
2 after step (2) but before step (3).

1 28. The method of claim 26, wherein the method is performed without any tools.

1 29. The method of claim 26, wherein observation of step (3) is obscured by the heat sink.

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